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JAPANESE PATENT OFFICE

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(21) Application number: **02013597**

(71) Applicant: **NIPPON DENNETSU CO LTD**

(22) Date of filing: **28.01.90**

(72) Inventor: **KIKUCHI ICHIU**

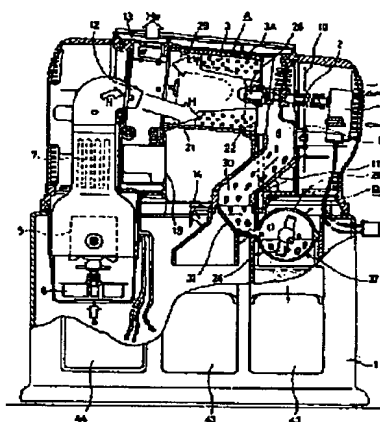
(54) **METHOD FOR ROASTING AND PULVERIZING
COFFEE BEAN AND APPARATUS THEREFOR**

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(57) Abstract:

PURPOSE: To readout obtain a coffee raw material capable of providing a coffee liquid excellent in flavor by removing skins while roasting raw coffee beans and stocking the resultant roasted beans or subsequently pulverizing the beans and stocking the prepared coffee powder.

CONSTITUTION: Raw coffee beans are filled in a roasting vessel 21 detachably provided in the upper part of a body 1 of a roasting and pulverizing device for the coffee beans and roasted by blowing hot air (H) from a hot air producing part 12 while being stirred with stirring blades 3. Peeled skins of the beans are simultaneously dropped into a chaff box 18. The roasted coffee beans are then introduced into a bean stocker 43 by changing over a shutter 31 and stocked therein or introduced into a mill case 26 and pulverized. The prepared pulverized coffee powder is subsequently dropped into a powder stocker 42 and stocked therein. When a coffee liquid is extracted, a required amount of the coffee powder is taken out and extracted.



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(21) Application number: **02068584**

(71) Applicant: **SUNAMI SADAKATSU**

(22) Date of filing: **19.03.90**

(72) Inventor: **SUNAMI SADAKATSU**

**(54) APPARATUS FOR ROASTING AND GRINDING
COFFEE BEAN**

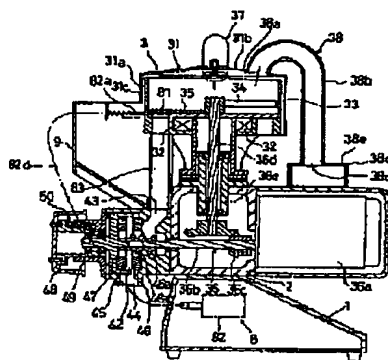
vessel 31 then drop in a taking out passage 83 by own weight thereof to enter a bean grinding chamber 42 without requiring a hopper.

(57) Abstract:

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PURPOSE: To miniaturize both a bean grinder and the whole apparatus and reduce cost of the bean grinder without impairing flavor by cooling coffee beans in a roasting chamber with a blower just after completing roasting, dropping and guiding the roasted coffee beans from a roasting vessel through a taking out passage into the bean grinder.

CONSTITUTION: A heater 32, a rotor 14 and a driving device 36 are operated to roast coffee beans and a blower 37 is then operated to blow cool outside air on the coffee beans to rapidly air-cool the coffee beans. Viscosity of fats sticking to the surface is eliminated and surface seed coats or fine powder is simultaneously peeled and separated with winnowing action. Thereby, the aforementioned operation is sufficiently performed without impairing flavor of the roasted coffee beans to facilitate discharge of the coffee beans from a roasting vessel 31 after the roasting. Furthermore, a great force is not required even if the coffee beans are ground just after the roasting. After roasting the coffee beans in a roaster 3, a shutter device 82 is operated to open a taking outlet 81. The coffee beans in the roasting





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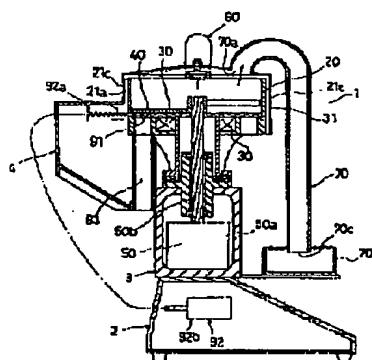
A23N 12/10(21) Application number: **02068585**(22) Date of filing: **19.03.90**(71) Applicant: **SUNAMI SADAKATSU**(72) Inventor: **SUNAMI SADAKATSU****(54) ROASTER FOR COFFEE BEAN****(57) Abstract**

PURPOSE: To facilitate bean grinding just after roasting, miniaturize a bean grinder, reduce cost thereof and prevent flavor of coffee from its being impaired by providing a construction so as to cool coffee beans in a roasting chamber with a blower just after completing the roasting.

CONSTITUTION: A heater 30, a rotor 40 and a driving device 50 are operated to roast coffee beans and a blower 60 is then operated to blow cool outside air on the roasted coffee beans to rapidly air-cool the coffee beans. Viscosity of fats sticking to the surface is eliminated and surface seed coats or fine powder is simultaneously peeled and separated with winnowing action. Thereby, the aforementioned operation is sufficiently performed without impairing flavor of the roasted coffee beans to simultaneously facilitate discharge of the coffee beans from a roasting vessel 20 after the roasting. Further, a great force is not required even if the coffee beans are ground just after the roasting and coffee bean grinding is facilitated. Furthermore, ingredients can be prevented from excessively leaching even in treating the coffee beans

with hot water after grinding thereof to prevent flavor from its being impaired.

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(21) Application number: **03098355**

(71) Applicant: **SUNAMI SADAKATSU**

(22) Date of filing: **01.04.91**

(72) Inventor: **SUNAMI SADAKATSU**

(54) COFFEE BEAN-ROASTING AND MILLING DEVICE

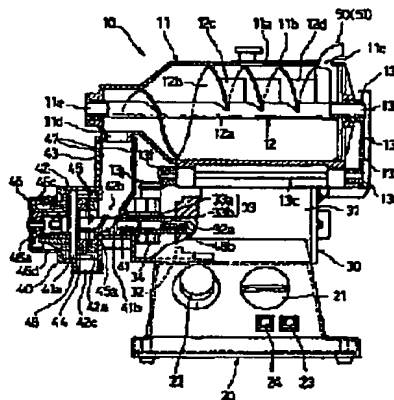
(57) Abstract:

PURPOSE: To provide a device comprising a roasting section and a mill section both having specific inner structures, capable of roasting in a roasting state corresponding to the taste of a drinker and of grinding the roasted coffee beans and capable of surely separating and removing bean shells peeled from the coffee beans during the roasting process.

CONSTITUTION: In a device provided with a mill section 40 having a rotatable mill plate 44 and a fixed mill plate 45 in a mutually faced state in a mill chamber 42a in a casing 42, with a roasting section 10 having a stirring and carrying screw 12 rotatable on a transverse axis and the screw 12 comprising a central shaft 12a, a discontinuous helical blade 12b, discontinuous helical grooves 12c formed between the blades 12b and a lifting tool 12d, and further with an air blower 50 for blowing cooled air into the roasting container 11, the stirring blade 12b is rotated on the transverse axis to efficiently roast the coffee beans at the bottom in the roasting container 11, and the surface layer of the roasted coffee beans is dried with cooled air, simultaneously discharging the peeled coffee bean shells from the roasting container 11, thereby permitting to

reduce the resistance of the rotation mill plate 44 and to efficiently discharge the ground coffee beans outside.

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B04C 7/00
B24B 31/10

(21) Application number: **04101893**(71) Applicant: **NIPPON DEMPA KOGYO CO LTD**(22) Date of filing: **27.03.92**(72) Inventor: **OTA HARUYOSHI****(54) VORTEX GRINDING AND VORTEX GRINDING DEVICE****(57) Abstract:**

PURPOSE: To provide a flat ground surface by soaking a grinding cylinder with side holes fixing a processed article on its peripheral surface in a grinding tank filled with grinding liquid, sucking out the grinding liquid from the bottom part of the grinding cylinder, concentratively flowing the grinding liquid again and generating a vortex along the peripheral surface of the grinding cylinder.

CONSTITUTION: A proper amount of grinding liquid 3 is filled in a grinding tank 2, a grinding cylinder 1 with a processed article previously fixed on its inner peripheral surface is soaked and fixed in the grinding tank 2, the grinding liquid 3 is sucked out from a conduit 5 connected to the lower part of the grinding cylinder 1 and again percolated to the upper part of the grinding tank 2. Consequently, a vortex is generated inside of the grinding cylinder 1, and the lengthy surface of the processed article fixed on the inner peripheral surface of the grinding cylinder 1 is exposed to the accelerated grinding liquid 3 and ground. In the meantime, the processed article particulates ground and liberated are separated, filtered and removed on the way of circulation by a liquid pump 4 installed with separator and filter functions. When the grinding liquid 3 is sucked out from the conduit 5 connected to the

lower part of the grinding cylinder 1, the grinding liquid 3 in the grinding tank 2 flows out downstream while revolving in high speed as a vortex curved by a fin provided on the outer peripheral surface of the grinding cylinder 1 in the vortex revolving direction.

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